REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3 and 5-19 are presently pending in this application, Claims 1, 13 and 14 having been amended by the present amendment.

In the outstanding Office Action, Claims 1, 3 and 6-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Horiuchi et al. (U.S. Publication 2004/0159121) in view of Higashiyama (U.S. Patent 6,973,805, hereinafter "Higashiyama '805") and Rong (U.S. Publication 2002/0079093); and Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Horiuchi et al. in view of Higashiyama, Rong and Higashiyama (U.S. Patent 6,923,251, hereinafter "Higashiyama '251").

Claims 1, 13 and 14 have been amended herein. These amendments find support in the specification, claims and/or drawings as originally filed, for example, the specification, page 28, lines 4-18, and no new matter is believed to be added thereby. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work in a joint effort to derive mutually satisfactory claim language.

Briefly recapitulating, Claim 1 of the present invention is directed to a heat exchanger and recites: "a refrigerant inlet header; a refrigerant outlet header arranged side by side with the refrigerant inlet header in a front-rear direction at an upper end of the heat exchanger; and a refrigerant circulating passage which holds the two headers in communication therethrough, wherein the inlet header has a refrigerant inlet at one end thereof, the outlet header has a refrigerant outlet at one end thereof alongside the inlet, the refrigerant circulating passage has a plurality of heat exchange tubes which has a plurality of upper portions, respectively, the upper portions of the heat exchange tubes are connected to the inlet header and the outlet header, a refrigerant is flowable into the inlet header from the inlet and thereafter returnable

to the outlet header through the circulating passage so as to be sent out from the heat exchanger through the outlet, the refrigerant inlet is provided in a closing member closing an opening of the inlet header at said end thereof, the closing member has a lower edge defining the inlet and provided with a guide slanting upward inwardly of the inlet header, and the guide is in the form of a segment of a sphere and has a projecting end face positioned on a slanting plane inclined with respect to a vertical inner surface of the closing member such that all of the refrigerant which flows into the inlet header through the inlet flows obliquely upward along the guide."

That is, the guide guides the refrigerant of vapor-liquid mixture phase flowing into the inlet header to flow in the opposite direction of the heat exchange tube, allowing the refrigerant to flow through the inlet header easily to locations remote from the inlet. Thus, the refrigerant flows through all the heat exchange tubes joined to the inlet header in uniform quantities and also through all the heat exchange joined to the outlet header in uniform quantities. Accordingly, the amount of refrigerant contributing to heat exchange is made uniform in the heat exchange core of the refrigerant circulating passage longitudinally of the inlet header, and the air passing through the core will have a uniform temperature, thereby improving heat exchange performance even when the refrigerant has a low flow rate.

It is respectfully submitted that none of Horiuchi et al., Higashiyama and Rong teaches or suggests "a refrigerant inlet header ..., wherein the inlet header has a refrigerant inlet at one end thereof ..., the refrigerant circulating passage has a plurality of heat exchange tubes which has a plurality of upper portions, respectively, the upper portions of the heat exchange tubes are connected to the inlet header and the outlet header ..., the refrigerant inlet is provided in a closing member closing an opening of the inlet header at said end thereof, the closing member has a lower edge defining the inlet and provided with a guide slanting upward inwardly of the inlet header, and the guide is in the form of a segment of a sphere and

has a projecting end face positioned on a slanting plane inclined with respect to a vertical inner surface of the closing member such that all of the refrigerant which flows into the inlet header through the inlet flows obliquely upward along the guide" as recited in amended Claim 1.

More specifically, Higashiyama shows a refrigerant diffusing portion (61) having small holes (61a), thus causing more of the refrigerant to flow into heat exchange tubes closer to a refrigerant inlet due to gravity. Consequently, the refrigerant flowing into the inlet header would flow obliquely downward through the small holes (61a). As such, even assuming, *arguendo*, that the refrigerant diffusing portion (61) shown in Higashiyama is combined with the heat exchanger of Horiuchi et al., Higashiyama would not remedy the deficiency of Horiuchi et al. Therefore, the structure recited in Claim 1 is believed to be clearly distinguishable from Higashiyama, Horiuchi et al. and Rong.

Because none of Higashiyama, Horiuchi et al. and Rong discloses the refrigerant inlet header structure as recited in Claim 1, even the combined teachings of these cited references would not render the heat exchanger of Claim 1 obvious.

For the foregoing reasons, Claim 1 is believed to be allowable. Furthermore, since Claims 3 and 5-19 depend directly or indirectly from Claim 1, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 3 and 5-19 are believed to be allowable as well.

In view of the amendments and discussions presented above, Applicant respectfully submits that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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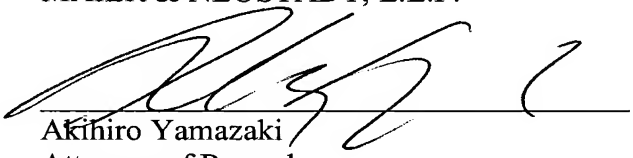

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